



June 21, 2018

The Travelers Companies
Business Property Insurance, Major Case Unit
One Tower Square MS06-A
Hartford, Connecticut 06183

Attention: Mr. Paul J. Sutherland, CPU, CHFC
pjsuther@travelers.com

Reference: **Industrial Hygiene Evaluation Report**
Rocky Waters Motor Inn
333 Parkway
Gatlinburg, Tennessee 37738
S&ME Project No. 4143-18-029 P001

Dear Mr. Sutherland:

S&ME, Inc. (S&ME) is pleased to present this report of our industrial hygiene evaluation of the Rocky Waters Motor Inn located at 333 Parkway in Gatlinburg, Tennessee. This work was performed in general accordance with S&ME proposal No. 41-1800298, dated May 14, 2018 and our Agreement for Services AS-071.

◆ Project Information

Based on the May 10, 2018 telephone conversation between yourself and Eric Solt of S&ME and an email from you to Eric Solt on the same day, S&ME was requested to provide Travelers with industrial hygiene consulting services to support their review of a smoke damage claim for the referenced hotel. This hotel has filed a claim for smoke damage caused by wild fires in Gatlinburg in November, 2016.

As part of the industrial hygiene evaluation, Mr. Sherman Woodson, a Certified Industrial Hygienist, has reviewed the previous sampling report for the referenced hotel. Air sampling was performed at the hotel in January 2018 by Forensic Building Science, Inc. The laboratory analysis of the samples was performed by N.G. Carlson Analytical, Inc. S&ME also visited the hotel on May 22, 2018 and observed representative rooms to identify the current conditions that may be related to smoke damage.

This report includes our comments and opinions of the previous sampling report and our observations and opinions of the current conditions.



◆ Review of Previous Air Sampling Reports

The January 22, 2018 report from Forensic Building Science is included in Attachment I. A total of thirteen (13) air samples and six (6) surface samples were collected in representative rooms in the hotel on January 4 and 5, 2018. The air samples were collected using Air-O-Cell cassettes and an air sampling pump. The surface samples were collected by pressing tape to the surface. Each of the air and surface samples were observed under light microscopy at 400X magnification. Particulates identified as either char or soot were counted and the results quantified in ranges. The ranges are correlated for the ranges of particles as "negligible impact of smoke," "limited impact," "moderate impact," "significant impact," and "major impact."

The majority of air samples had char and soot particle counts in the ranges correlated to "negligible" or "limited" with regards to "smoke impact." Three locations (Room 131, attic space above Rooms 101 and 102, and attic space above Rooms 116 – 119) had char particle counts in the low end of "significant" range and one location (Room 105) with a char particle count in the "moderate" range. The two samples collected in the attic space are noted to be "ambient" air.

Likewise, the majority of tape samples had char and soot particle counts in the ranges correlated to "negligible" or "limited" with regards to smoke impact. Two locations (Rooms 102 and 131) had a char and soot particle counts in the "significant" category. It should be noted that these samples were collected from the wood burning fire places in these rooms.

S&ME also noted the following with regards to the report: 1) based on a review of the website, it does not appear that N.G. Carlson Analytical is an accredited laboratory, 2) there is no reference to the particle count classifications included in the report 3) it appears that the particle counts are average counts per field (not explicitly stated in the table). Therefore, the concentrations of the room samples and ambient samples cannot be compared as different air volumes were sampled, and 4) the ambient locations are described as "attic space." These spaces may be an unconditioned and unoccupied but still seem like potential indoor spaces with the same potential smoke impact as the indoor rooms. We would have preferred to have outdoor samples for comparison to the indoor samples.

◆ Observations By S&ME On May 22, 2018

S&ME performed a walk-through of representative rooms of the Rocky Waters Motor Inn on May 22, 2018. In addition to S&ME, Mr. Paul Sutherland (The Travelers Companies) and Mr. Wes Bolick (Young and Associates) participated in the walk-through of the rooms.

Rooms selected to observe were either unoccupied at the time of our site visit (keys for available rooms were provided by hotel management) or were open and occupied by cleaning staff. S&ME observed a total of seven (7) rooms and the electrical room at the Rocky Waters Motor Inn. In addition to the interior of the rooms, S&ME observed the exterior of the rooms including balconies. Accessible common areas on the interior and exterior were also observed during our site visit.

The rooms observed at the Rocky Waters Motor Inn did not appear to have been renovated since the 2016 wild fires. Each of the rooms had similar construction including textured paint on drywall walls and ceiling and carpeted floors.

S&ME did not observe visible signs (soot or staining) or odors (smoke odor) to indicate fire damage.



◆ Conclusions and Opinions

As noted in the sample results, the majority of air and tape samples have particle counts in the "negligible" or "limited" range and the samples with particle counts in higher concentration ranges appear to be in rooms noted as "ambient" sample locations. Therefore, S&ME's opinion is that the sample results do not indicate that smoke damage related to the 2016 wild fires is present in the rooms. This opinion was confirmed by the lack of visible signs or odors related to smoke damage noted during our walk-through observations on May 22, 2018.

◆ Closing

S&ME appreciates the opportunity to provide our industrial hygiene services. If you have any questions or need additional assistance, please do not hesitate to call us at (865) 977-0003.

Sincerely,

S&ME, Inc.

A handwritten signature in blue ink that reads "E. Solt".

Eric M. Solt
Senior Project Manager

A handwritten signature in blue ink that reads "Sherman Woodson".

Sherman Woodson, CIH, CSP
Senior Industrial Hygienist

Attachments

Attachment I – Forensic Building Science Report

Forensic Building Science, Inc.

657 Lincoln Avenue

St. Paul, MN 55105

T: 651.222.6509

www.forensicbuildingscience.com

Date: January 22, 2018

Client: Howarth Group

Property: Rocky Waters Motor Inn
333 Parkway,
Gatlinburg, TN 37738

Dear Mr. Howarth:

This letter will serve as an interpretation with recommendations from our particulate matter sampling at the above referenced property. Air sampling and tape lift sampling was performed by Forensic Building Science (FBS) on January 4 and 5, 2018 in response to a recent brush fire.

I. Summary of Opinions

Based on the site inspection and documentation of the damages conducted by FBS, including review of the results of our soot sampling I have concluded that the property in question located at 333 Parkway, Gatlinburg, TN 37738 has been damaged by the brush fire through the deposition of soot and ash throughout the attic assemblies, interior partition walls, dropped ceilings, mechanical chase ways, light fixtures and venting. Based on the sample results, and the type of construction in the building, it is my opinion that the brush fire caused damage to the building through the deposition of carcinogenic soot into hidden wall and ceiling cavities. This soot is still viable in the ambient air as evidenced by our sampling results.

II. Sampling Results

N.G. Carlson Analytical, Inc.
216 16th Ave. S.W.
New Brighton, MN 55112

January 13, 2018

RE: Rocky Waters Motor Inn, 333 Parkway, Gatlinburg, TN 37738

Air-o-cell cassette samples (January 4, 2018 to January 5, 2018)

Rocky Water Motor Inn

Location (description from chain of custody)	Trace density	Primary Particles	Notes
2- Room 102 bedroom exterior (LE) wall (30 liters)	Light	Char [<0.5] No Soot	
3 Room 104 bathroom vanity interior dividing wall (30 liters)	Moderate	Char [<0.5] Soot [1-2]	
4 Room 105 bathroom dropped ceiling (30 liters)	Very Heavy	Char [8-10] Soot [<0.5]	
5 Room 114 bedroom exterior (BE) wall (30 liters)	Light	Char [<1] No Soot	
6 Room 118 bathroom interior wall through plumbing chaseway (30 liters)	Light	Char [<1] No Soot	
7 Room 119 exterior (LE) wall (30 liters)	Light	No Char No Soot	
8 Room 125 interior wall vanity (30 liters)	Light	Char [<0.5] No Soot	
9 Room 127 interior dividing (LE) wall (30 liters)	Light	No Char No Soot	

10 Room 128 bathroom (FE) exterior wall (30 liters)	Light	Char [<0.5] No Soot	
11 – Room 136 vanity interior wall (30 liters)	Light	Char [<0.5] No Soot	Light Asp/Pen like
13 – Room 131 bathroom CMU chaseway inside dropped ceiling (30 liters)	Heavy	Char [15-20] Soot [1-2]	
14 – Attic space above Room 101 & 102 ambient air (75 liters)	Moderate	Char [40-50] Soot [<1]	
17 – Attic space above rooms 116-119 ambient air (75 liters)	Heavy	Char [10-14] Soot [<0.5]	Light Asp/pen like

Char and soot like particle interpretation:

Less than 0.5 particles per field (400x) – negligible impact of smoke

0.5 and 2.0 particles per field (400x) – limited impact of smoke

2.0 and 10 particles per field (400x) – moderate impact of smoke

10 – 50 particles per field (400x) – Significant impact of smoke

> 50 particles per field TNTC – Major impact of smoke

* Several large clusters of soot-like particles noted

Tease tape samples (January 4, 2018 to January 5, 2018)

Location (description from chain of custody)	Trace density notes	Primary Particles	Notes
1 – Room 102 wood burning fire place – tape lift		Char [20-30] Soot [50+]	

12 – Room 131 fireplace - tape lift		Char [10-20] Soot [50+]	
15 – Attic space above rooms 101 & 102 wood joist- tape lift		Char [2-3] No Soot	
16 – Attic space above rooms 108 & 109 support beam- tape lift		Char [5-10] Soot [<1]	
18 – Attic space above Rooms 116-119 metal pipe– tape lift		Char [5-10] No Soot	

Char and soot-like particle interpretation:

Less than 0.5 particles per field (400x) - negligible impact of smoke

0.5 and 2.0 particles per field (400x) - limited impact of smoke

2.0 and 10 particles per field (400x) - moderate impact of smoke

10 - 50 particles per field (400x) - Significant impact of smoke

> 50 particles per field TNTC - Major impact of smoke

* Several large clusters of soot-like particles noted

Methods:

The Air-o-cell Cassette traces were identified under light microscopy viewed at 100x, 200x and 400x. Lacto fuchsin stain in 85% lactic acid was used to aid in identification.

No chemical identification was conducted on the soot-like, char-like particles, and carbon black-like particles. Presumptive identification was based on particle morphology.

Discussion:

Soot levels varied from not noted to major on the tease tape samples.

Char levels varied from negligible to significant on the tease tape samples.

Char levels varied from not noted to moderate on the air samples.

Soot levels varied from not noted to limited on the air samples.

Sincerely,



Neil G. Carlson, C.I.H.
N.G. Carlson Analytical, INC.

III. Sampling Discussion

Typically, in post fire remediation strategies recommended by fire restoration companies and insurance companies, walls, ceilings and floors that do not show signs of actual fire damage [e.g. char, physically burned materials] are left in place and either surfaced cleaned or repainted. Post remediation complaints from building occupants often include descriptions of a "lingering smoke smell" months and years later, particularly when large variations in temperature and humidity occur. Soot left in these cavities is "recharged" by this increase in water vapor drive from the humidity causing the smell to present.

FBS collected a total of 18 interior samples at the Rocky Water Motor Inn building. The primary purpose of the sample collection was to determine whether or not smoke soot consistent with the reported fire event is in the ceiling, wall, floor and ducting cavities, wire chase ways and other open bypass areas and assist in developing recommendations for repairs.

All the air samples were collected with an air sampling pump calibrated to run at a volume of 15 liters per minute. The sample duration varied by location. The air samples were collected with Air-O-Cell sampling cassettes.

The ambient air samples are collected for a five-minute sample period to use for comparison purposes. Tape lifts and were collected from visible surfaces where no sign of soot was viewed.

The sample locations were chosen based on my training, education and experience and the site-specific inspections and similar projects with similar failure mechanisms. All the samples were collected and entered in to a sample chain of custody. After the sampling was completed, the samples were delivered to Neil Carlson, CIH, of NG Carlson Analytical. The analysis of the results is included in the report from him.

In addition to the sample chain of custody, the locations of all the samples were written down in a site log book so that the information can be more easily viewed.

IV. Description of Soot

Definition of Soot:

Soot is a general term that refers to the black, impure carbon particles resulting from the incomplete combustion of a hydrocarbon. It is more properly restricted to the product of the gas-phase combustion process but is commonly extended to include the residual pyrolyzed fuel particles such as cenospheres, charred wood, petroleum coke, etc. that may become airborne during pyrolysis and which are more properly identified as cokes or chars. The gas-phase soots contain polycyclic aromatic hydrocarbons (PAHs). The PAHs in soot are known mutagens and probable human carcinogens. Soot is in the general category of airborne particulate matter, and as such is considered hazardous to the lungs and general health. Soot is classified as a "Known Human Carcinogen" by the International Agency for Research on Cancer (IARC).ⁱ

V. Conclusions

Soot and/or char was found in 16 of the 18 locations sampled [89% of the samples taken]. Generally, attic areas, mechanical chase ways in CMU block and drop ceiling areas were most affected. Some interior partition walls were also affected.

Based on the results of the sampling, all insulation should be removed from the attics, and all framing, exposed roof deck sheathing, ducting, piping and top surface of exposed upper ceiling in the attics should be cleaned by HEPA and back sprayed with BIN primer. All mechanical chase ways in CMU should be cleaned and sealed. All drop ceilings materials should be discarded and replaced. During this work, all ceiling and interior walls that are exposed during the attic work should also be cleaned and reinsulated.

All top floor ceiling lights and electrical outlets should be detached, cleaned and reset. To eliminate cross contamination removal should be done using enclosed critical containments and HEPA units.

Forensic Building Science's opinions and recommendations are made without regard to coverage. The Insurance Carrier determines coverage and any issues related to coverage are the responsibility of the Insured and the Carrier. Discovery is ongoing. Additional testing and inspections may need to be performed and additional and/or supplemental information and opinions may be contained in future reports issued by Forensic Building Science, Inc. This report is the exclusive property of the client noted previously and cannot be relied upon by a third party. Copies of this report are released to third parties only by written permission of the client.



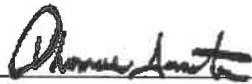
Adam Piero, Field Investigator

January 22, 2018
Date



Jim Irmiter, Senior Project Consultant
IICRC Fire and Smoke Restoration Technician

January 22, 2018
Date



Thomas Irmiter, President & Owner

January 22, 2018
Date

ⁱ Reference

US Department of Health and Human Services. Public Health Service, National Toxicology Program. Report on Carcinogens, Twelfth Edition. 2011. Accessed at <http://ntp.niehs.nih.gov/ntp/roc/twelfth/roc12.pdf> on June 14, 2011.